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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,829	10/31/2003	Huei Pei Kuo	200309594-1	1282

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FORT COLLINS, CO 80527-2400

EXAMINER
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WONG, ERIC K

ART UNIT	PAPER NUMBER
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2883

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/18/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/698,829	KUO ET AL.	
	Examiner	Art Unit	
	Eric Wong	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 October 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 16-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 24-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/2003</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of non-elected claims 16-23 in the reply filed on 10/25/06 is acknowledged. The traversal is on the ground(s) that a serious search burden would not result in the examination between the apparatus and the method of making the claimed apparatus. This is not found persuasive because the method of making said apparatus falls within an entirely separate classification. Searching for art related to the specific steps involved with depositing and patterning layers falls well outside the scope of class 385, where the apparatus is classified.

The requirement is still deemed proper and is therefore made FINAL.

### ***Drawings***

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-15 and 24-34 are rejected under 35 U.S.C. 102(b) as being anticipated by

United States Patent Number 6,031,954 to Higuchi.

Higuchi discloses a display apparatus comprising:

- A plurality of substantially totally internally reflecting (TIR) light guides (26) for expanding a small original optical representation from an input of each light guide to a larger optical representation output at an output of each waveguide (each angled face of waveguide 26 is larger than at its input and further reflects to form a larger viewing display 31).

As to claim 2, a TIR waveguide would inherently have a cladding of lower refractive index to maintain a totally internal reflection.

As to claim 3, the device has an acute angle between its input and output sections.

As to claim 4, each waveguide projects a pixel that forms an image (figure 1).

As to claim 5, each waveguide has a beveled surface (waveguides cut at an angle at output).

As to claim 6, a reflecting element (35) is coupled to the beveled surface and reorients light to an angle substantially more perpendicular to the beveled surface.

As to claim 7, a plurality of reflectors (35) are disclosed in figure 7.

As to claim 8, reflected light is output to a side not away from the beveled surface toward display 31.

As to claim 9, diffractors are disclosed to improve contrast.

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As to claim 10, the reflecting element is made of scrylic and would enhance durability and enhances viewing.

As to claim 11, the reflecting element is coated.

As to claims 12 and 29, the cladding is made of flouroplastic.

As to claim 13, acrylic is used.

As to claims 14 and 30, air may be used (see prior art claim 8).

As to claims 15 and 31, acrylic resin is used.

As to claim 32, multiple reflectors are set at predetermined angles to receive light from beveled surfaces.

5. Claims 1-5, 12, 15, 24-26, 29, 31 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent Number 5,381,502 to Veligdan.

Veligdan discloses a display apparatus comprising:

- A plurality of substantially totally internally reflecting (TIR) light guides (12) for expanding a small original optical representation from an input of each light guide to a larger optical representation output at an output of each waveguide (Abstract; each angled face of waveguide 12 is larger than at its input).

As to claim 2, a TIR waveguide would inherently have a cladding of lower refractive index to maintain a totally internal reflection.

As to claim 3, the device has an acute angle.

As to claim 4, each waveguide projects a pixel that forms an image (figure 1).

As to claim 5, each waveguide has a beveled surface (waveguides cut at an angle at output).

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As to claims 12 and 29, plastic is used.

As to claims 15 and 31, an adhesive is used.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 13-14 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veligdan as applied to claims above.

Veligdan discloses the claimed display apparatus except for the use of air or acrylic.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use air or acrylic as materials, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

8. Claims 6-11, 27-28, and 32-34 rejected under 35 U.S.C. 103(a) as being unpatentable over Veligdan as applied to claims above, and further in view of United States Patent Number 4,003,080 to Maiman et al (hereinafter Maiman).

Veligdan discloses a totally internal reflecting display device with beveled surfaces used to display an image. However, Veligdan fails to explicitly disclose coupling said beveled edge to a screen (reflective element).

Maiman discloses in figure 4, a TIR waveguide having a beveled edge coupled to a reflective surface.

It would have been obvious to one having ordinary skill in the art to use the reflective screen of Maiman coupled to the beveled surface of Veligdan to further enlarge and image and to project an image with higher clarity.

*Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. United States Patent Number 6,224,216 to Parker et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Wong whose telephone number is 571-272-2363. The examiner can normally be reached on Monday through Friday, 830AM - 430PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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